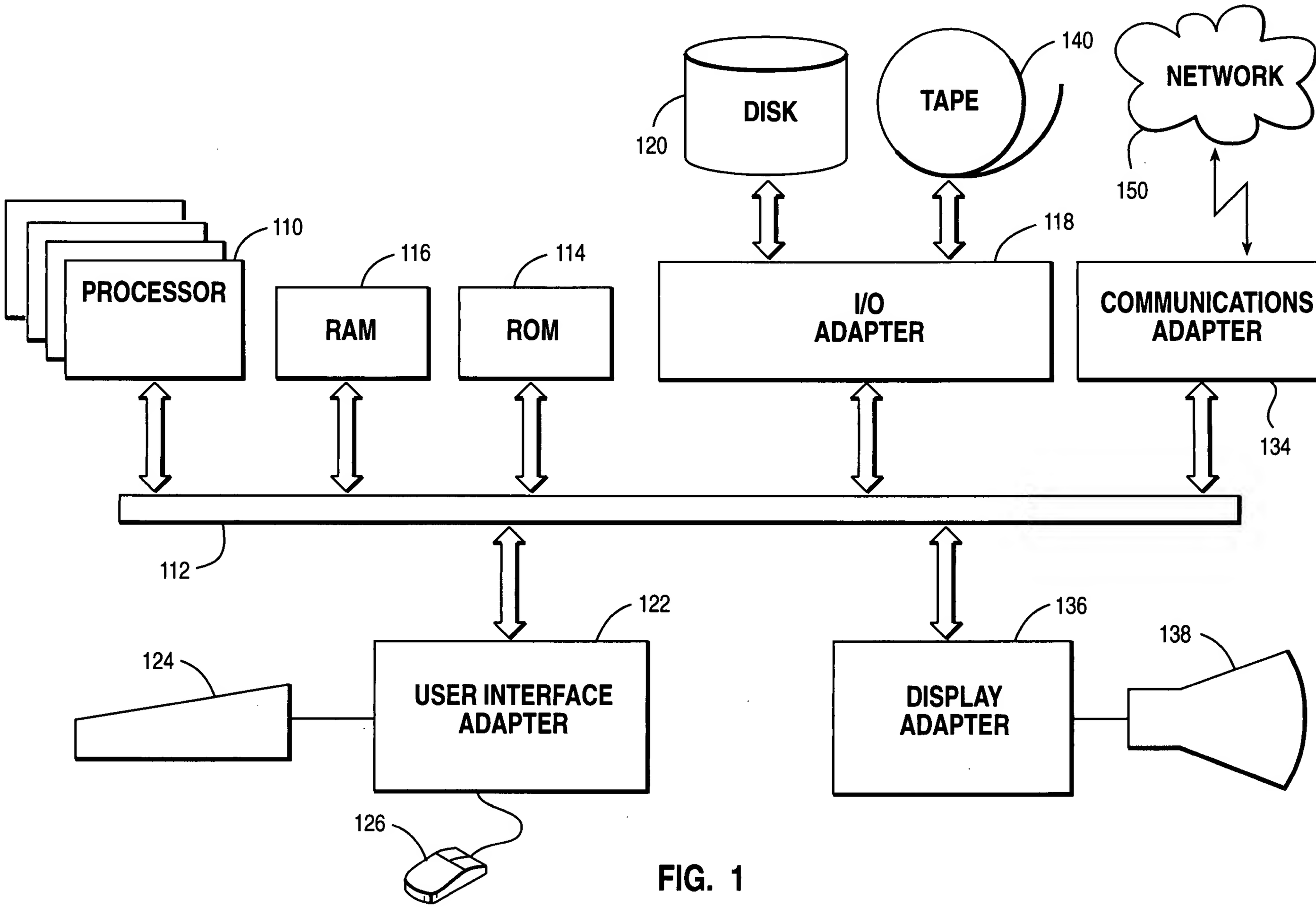

PROCESSOR
110
RAM
116
ROM
114
DISK
120
TAPE
140
NETWORK
150
I/O
ADAPTER
118
COMMUNICATIONS
ADAPTER
134
112
USER INTERFACE
ADAPTER
122
124
126
DISPLAY
ADAPTER
136
138

FIG. 1

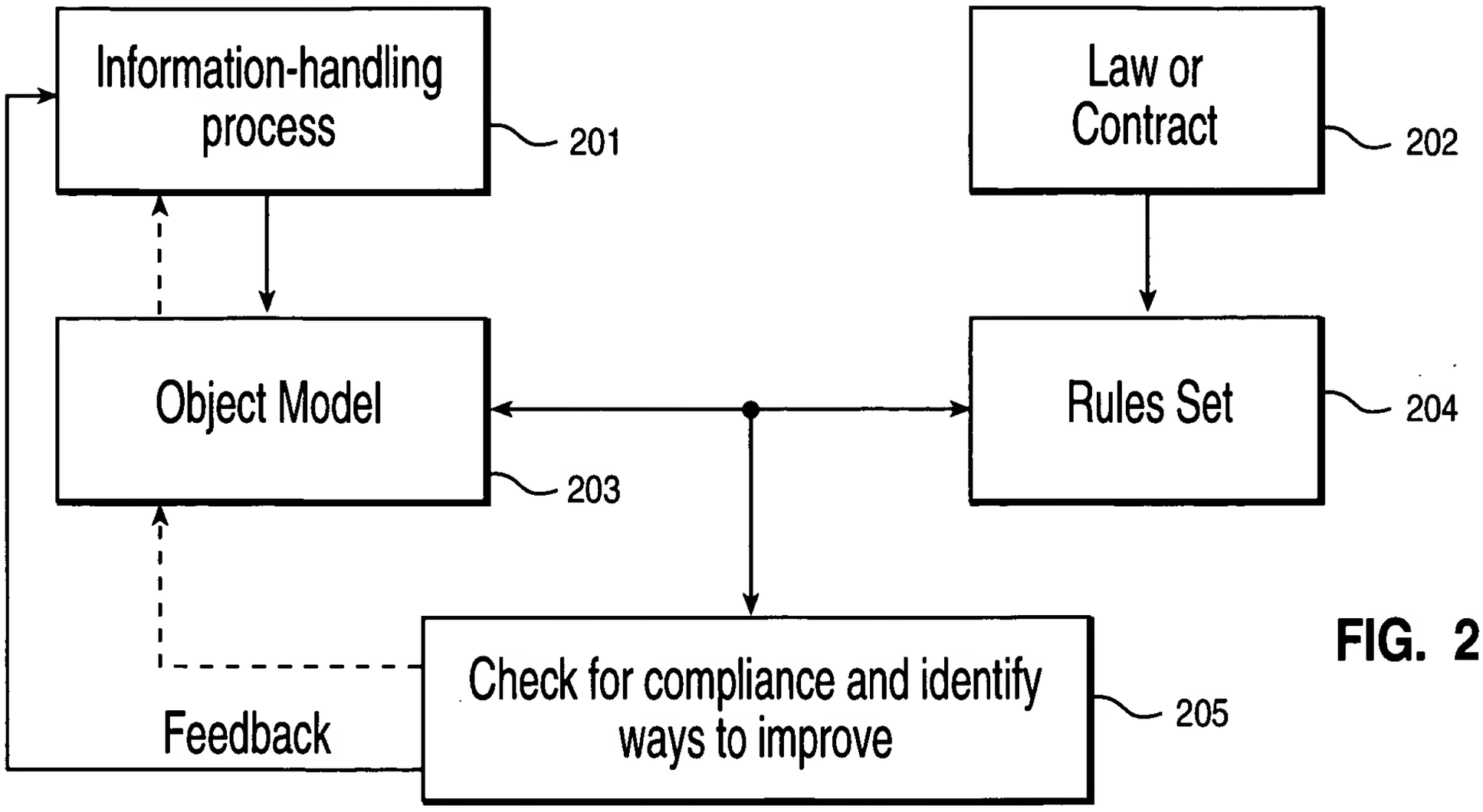


FIG. 2

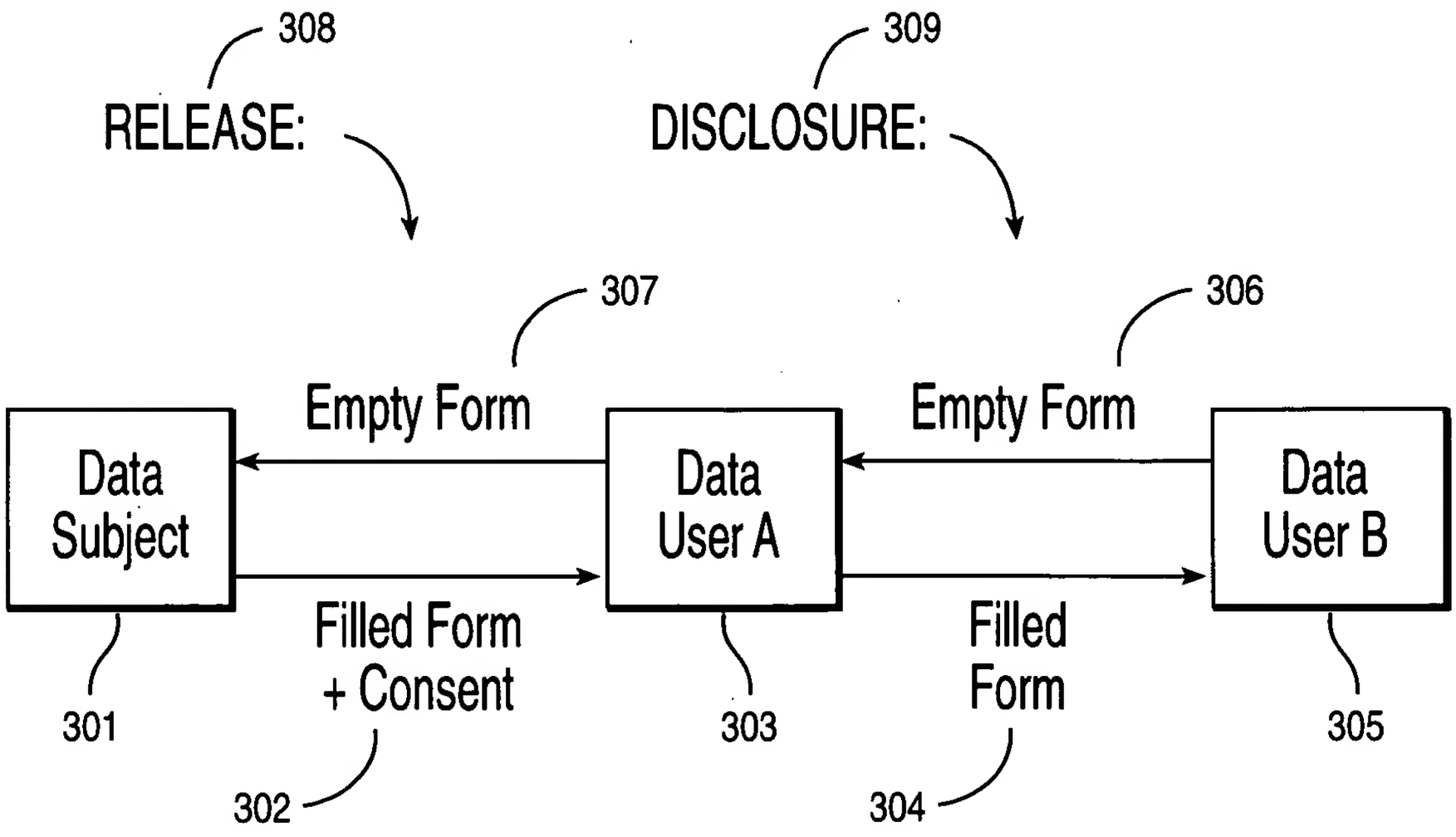


FIG. 3

Empty Form: = Form Fields + Privacy Policy
Filled Form: = Empty Form + Collected Data

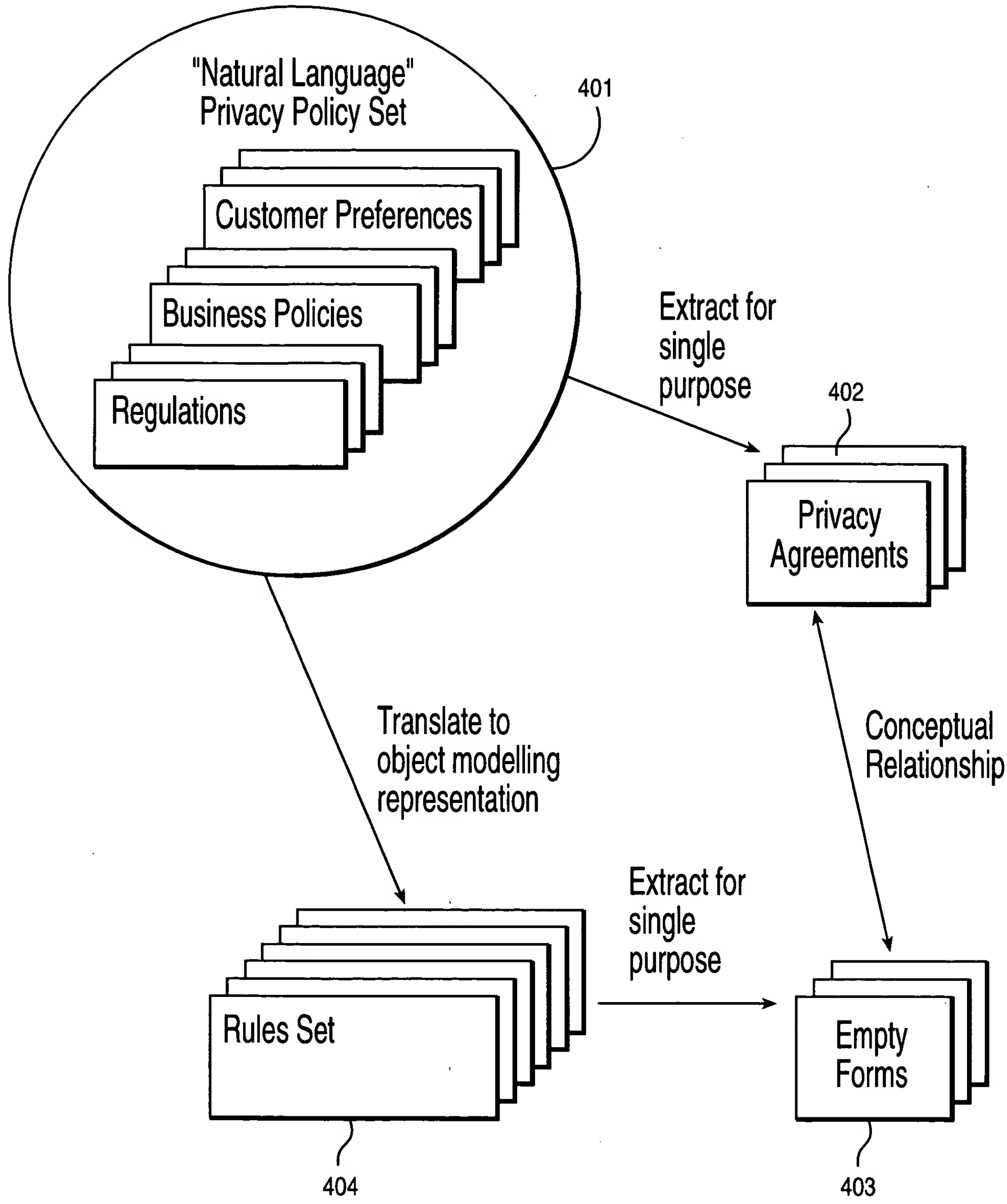

"Natural Language"
Privacy Policy Set
401
Customer Preferences
Business Policies
Regulations
Extract for
single
purpose
402
Privacy
Agreements
Translate to
object modelling
representation
Conceptual
Relationship
Extract for
single
purpose
Rules Set
404
Empty
Forms
403

FIG. 4

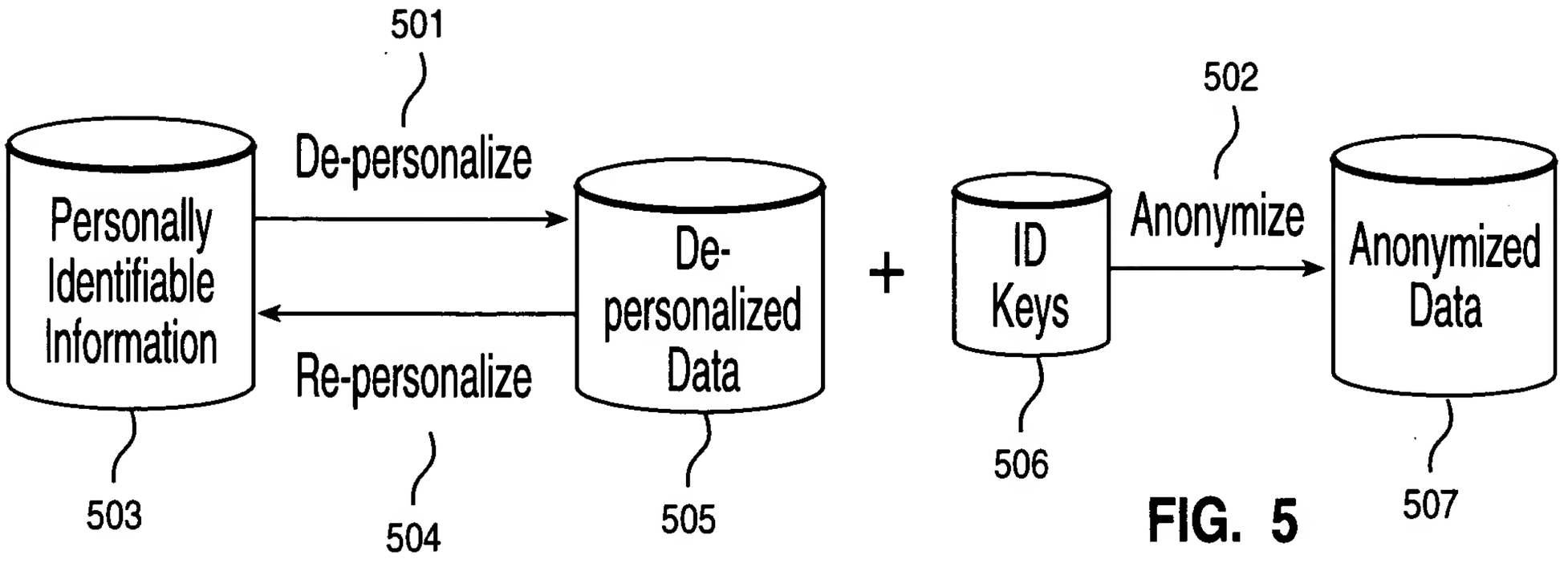
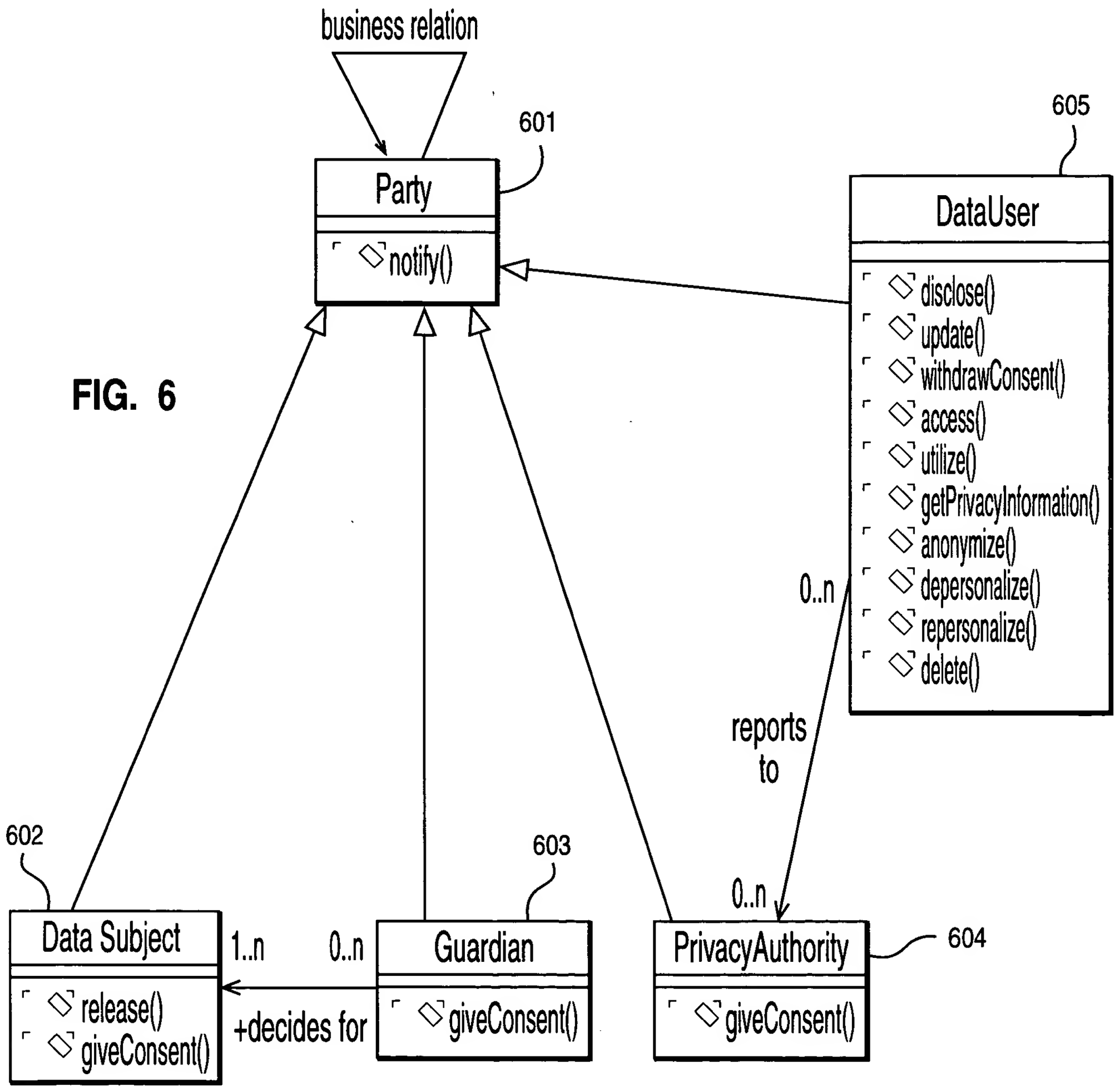

501
De-personalize
Personally Identifiable Information
Re-personalize
De-personalized Data
503
504
505
+
502
ID Keys
Anonymize
Anonymized Data
506
507

FIG. 5

FIG. 6


business relation
601
Party
notify()
605
DataUser
disclose()
update()
withdrawConsent()
access()
utilize()
getPrivacyInformation()
anonymize()
depersonalize()
repersonalize()
delete()
0..n
reports to
602
603
0..n
Data Subject
1..n
0..n
Guardian
PrivacyAuthority
604
release()
giveConsent()
+decides for
giveConsent()
giveConsent()

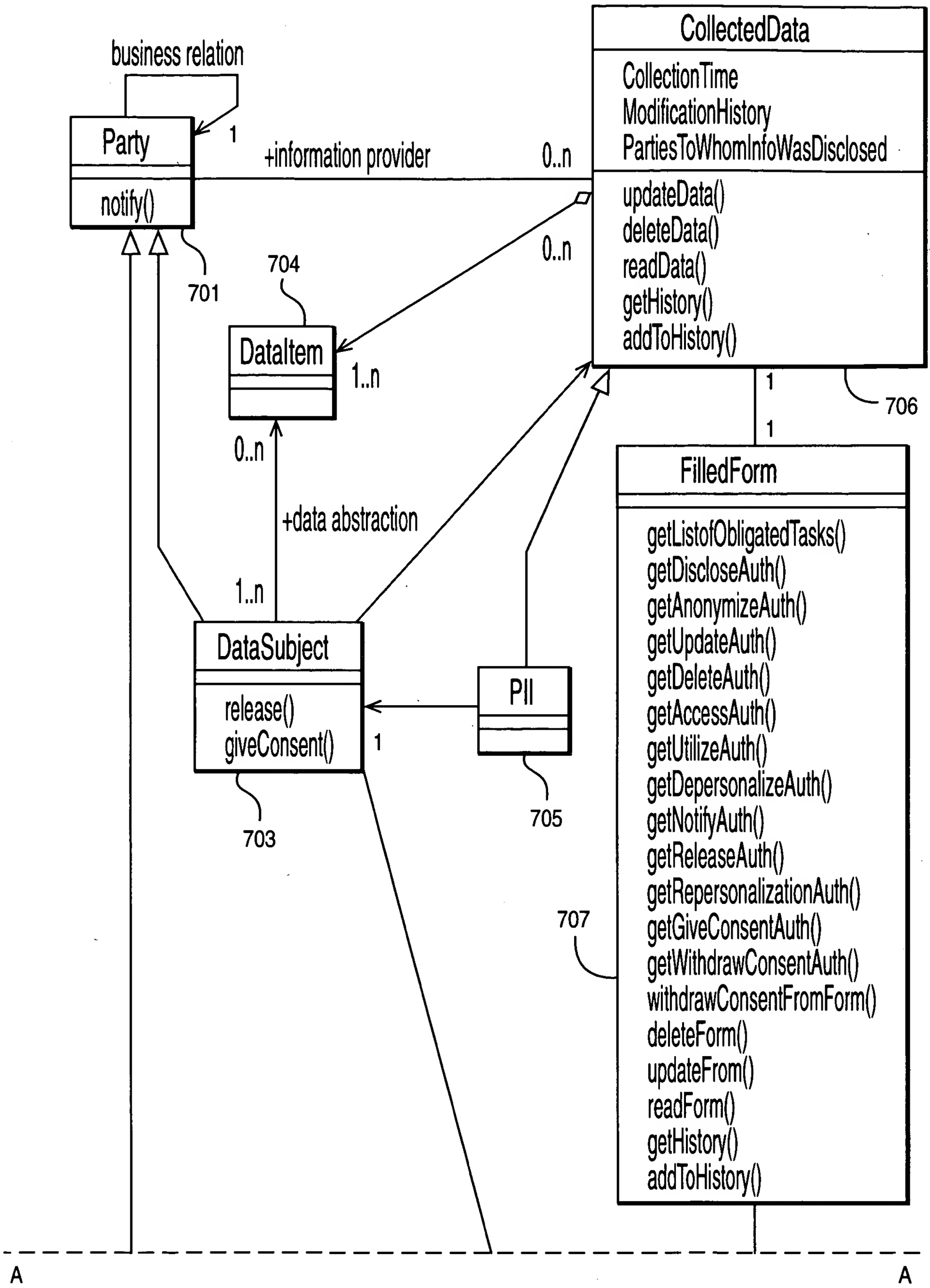

business relation
Party
notify()
1
+information provider
0..n
CollectedData
CollectionTime
ModificationHistory
PartiesToWhomInfoWasDisclosed
updateData()
deleteData()
readData()
getHistory()
addToHistory()
0..n
701
704
DataItem
1..n
0..n
+data abstraction
1..n
1
706
1
FilledForm
getListofObligatedTasks()
getDiscloseAuth()
getAnonymizeAuth()
getUpdateAuth()
getDeleteAuth()
getAccessAuth()
getUtilizeAuth()
getDepersonalizeAuth()
getNotifyAuth()
getReleaseAuth()
getRepersonalizationAuth()
getGiveConsentAuth()
getWithdrawConsentAuth()
withdrawConsentFromForm()
deleteForm()
updateFrom()
readForm()
getHistory()
addToHistory()
707
DataSubject
release()
giveConsent()
1
PII
703
705
A
A

FIG. 7A

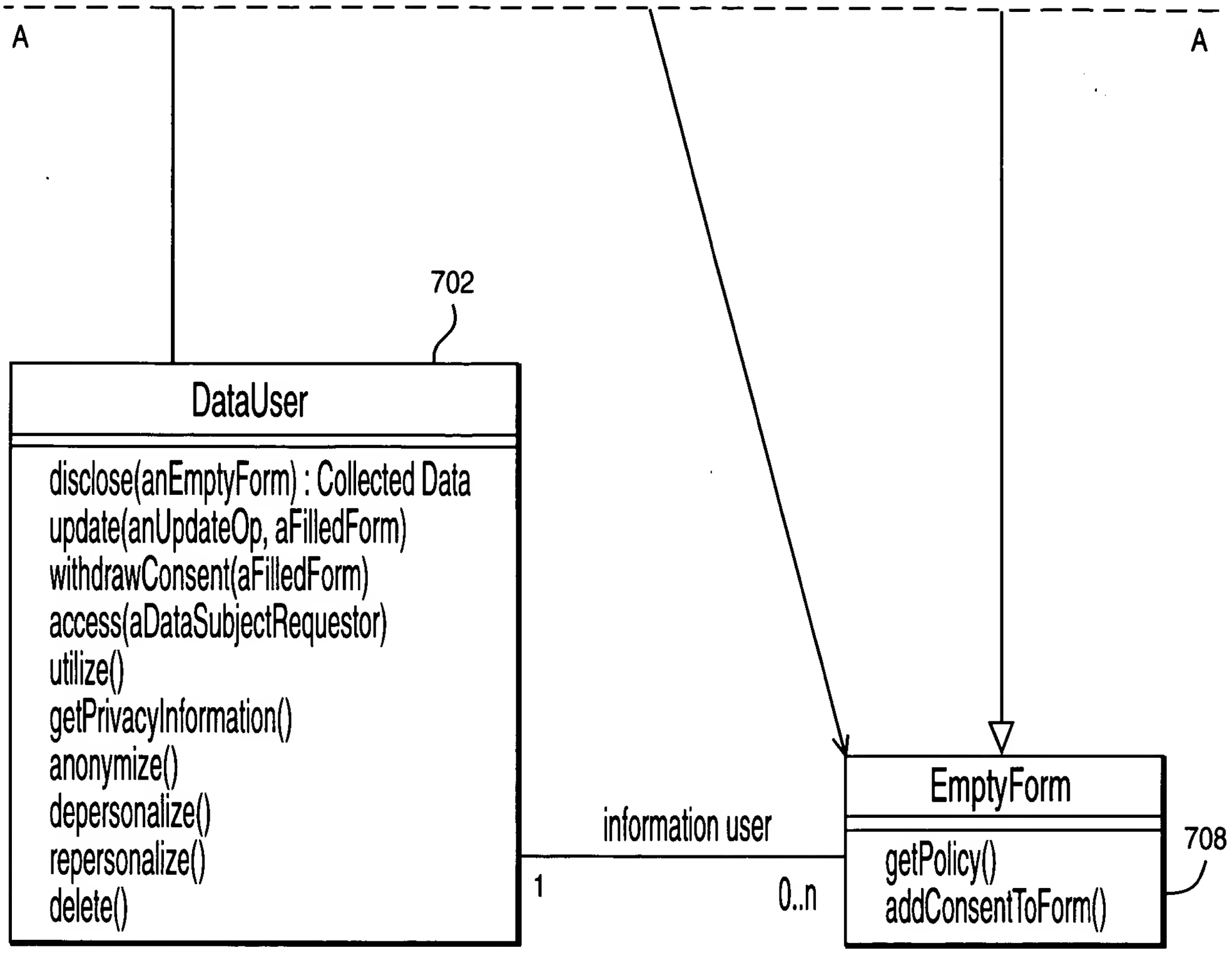
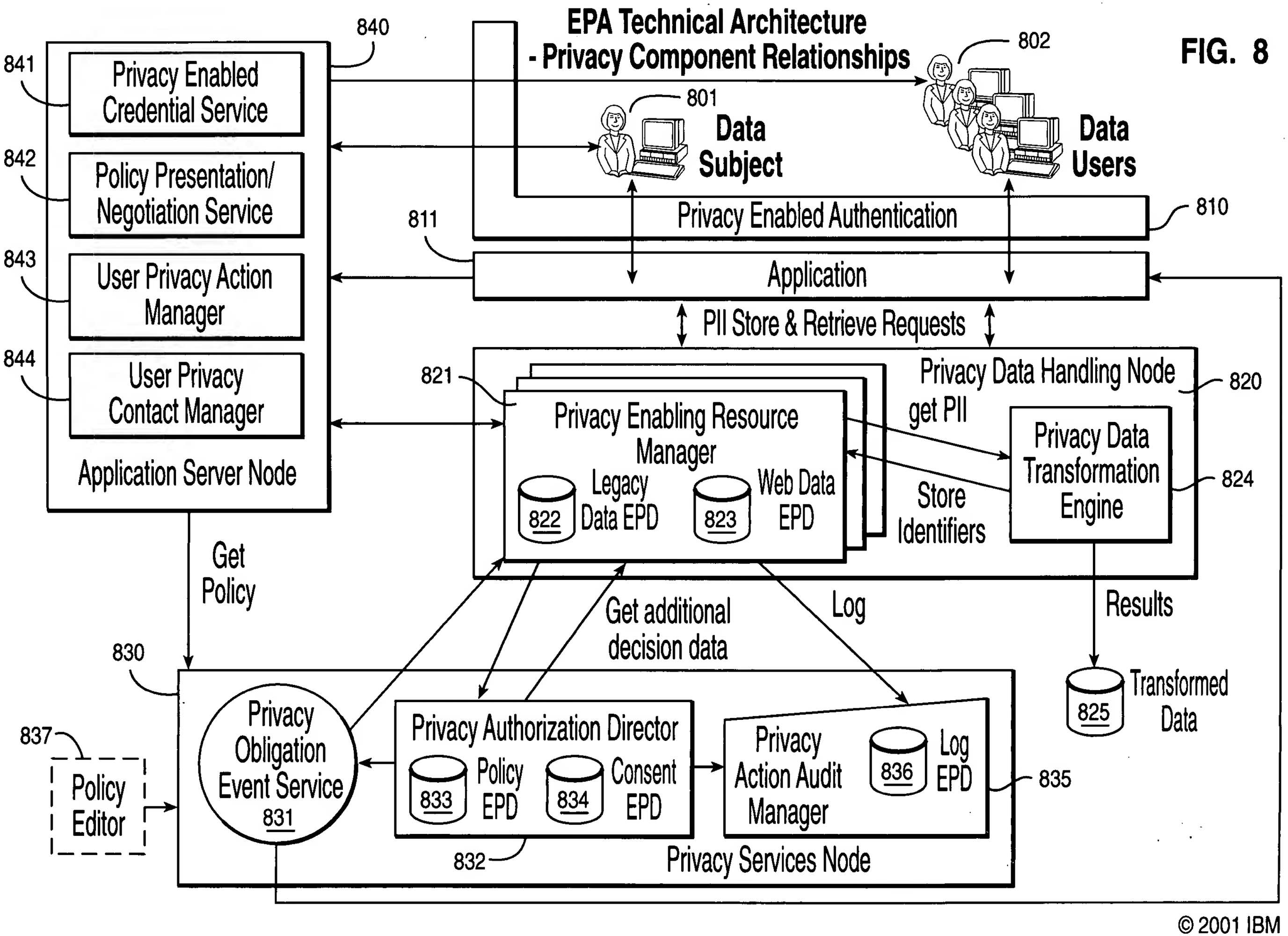

A
A
702
DataUser
disclose(anEmptyForm) : Collected Data
update(anUpdateOp, aFilledForm)
withdrawConsent(aFilledForm)
access(aDataSubjectRequestor)
utilize()
getPrivacyInformation()
anonymize()
depersonalize()
repersonalize()
delete()
information user
1
0..n
EmptyForm
getPolicy()
addConsentToForm()
708

FIG. 7B


EPA Technical Architecture
- Privacy Component Relationships
FIG. 8
840
841
Privacy Enabled Credential Service
842
Policy Presentation/ Negotiation Service
843
User Privacy Action Manager
844
User Privacy Contact Manager
Application Server Node
802
801
Data Subject
Data Users
811
Privacy Enabled Authentication
810
Application
PII Store & Retrieve Requests
821
Privacy Enabling Resource Manager
822
Legacy Data EPD
823
Web Data EPD
Privacy Data Handling Node
820
get PII
Store Identifiers
Privacy Data Transformation Engine
824
Get Policy
Get additional decision data
Log
Results
830
Privacy Obligation Event Service
831
Privacy Authorization Director
833
Policy EPD
834
Consent EPD
832
Privacy Action Audit Manager
836
Log EPD
835
Privacy Services Node
825
Transformed Data
837
Policy Editor
© 2001 IBM

Privacy Component Relationships

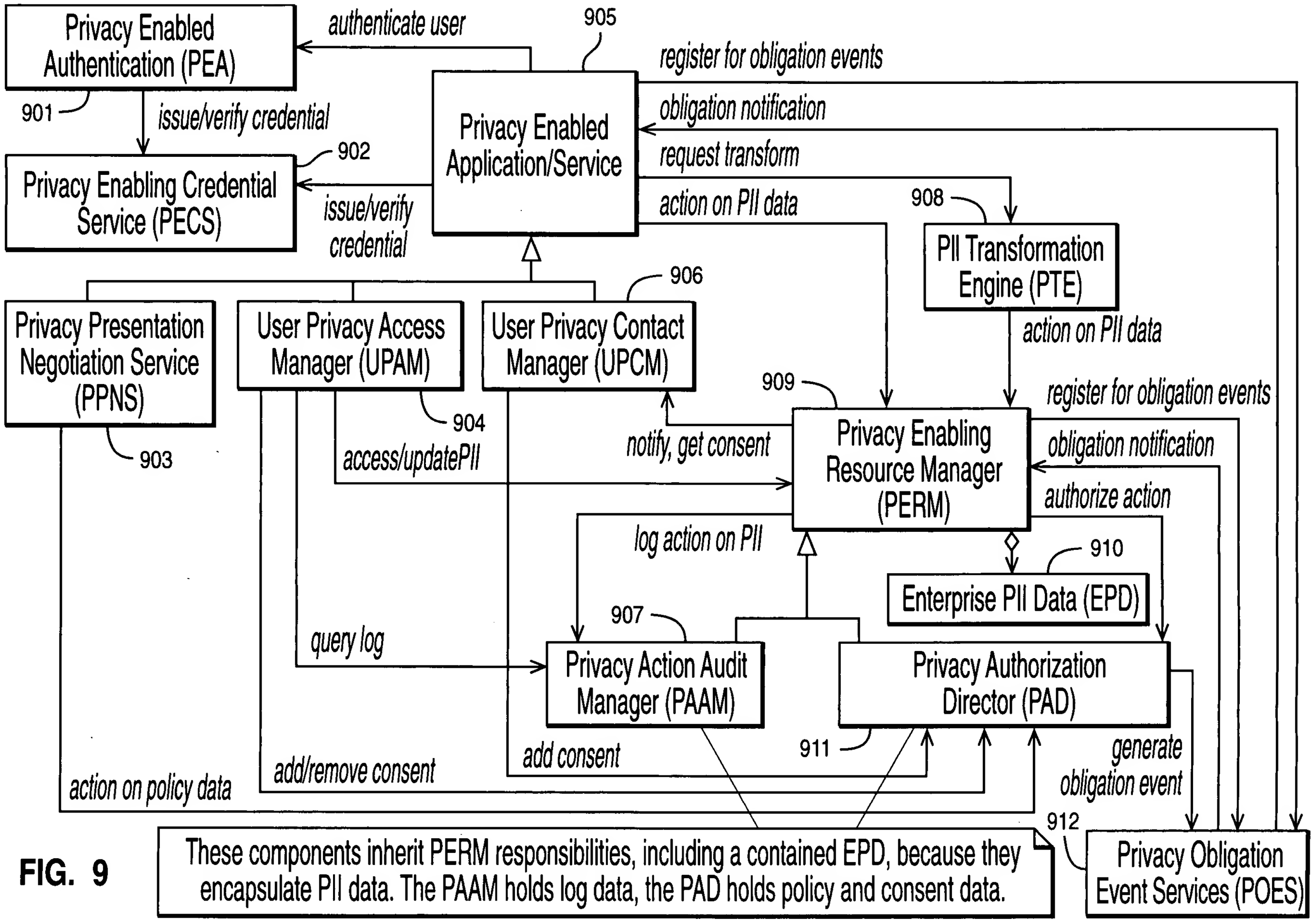


FIG. 9

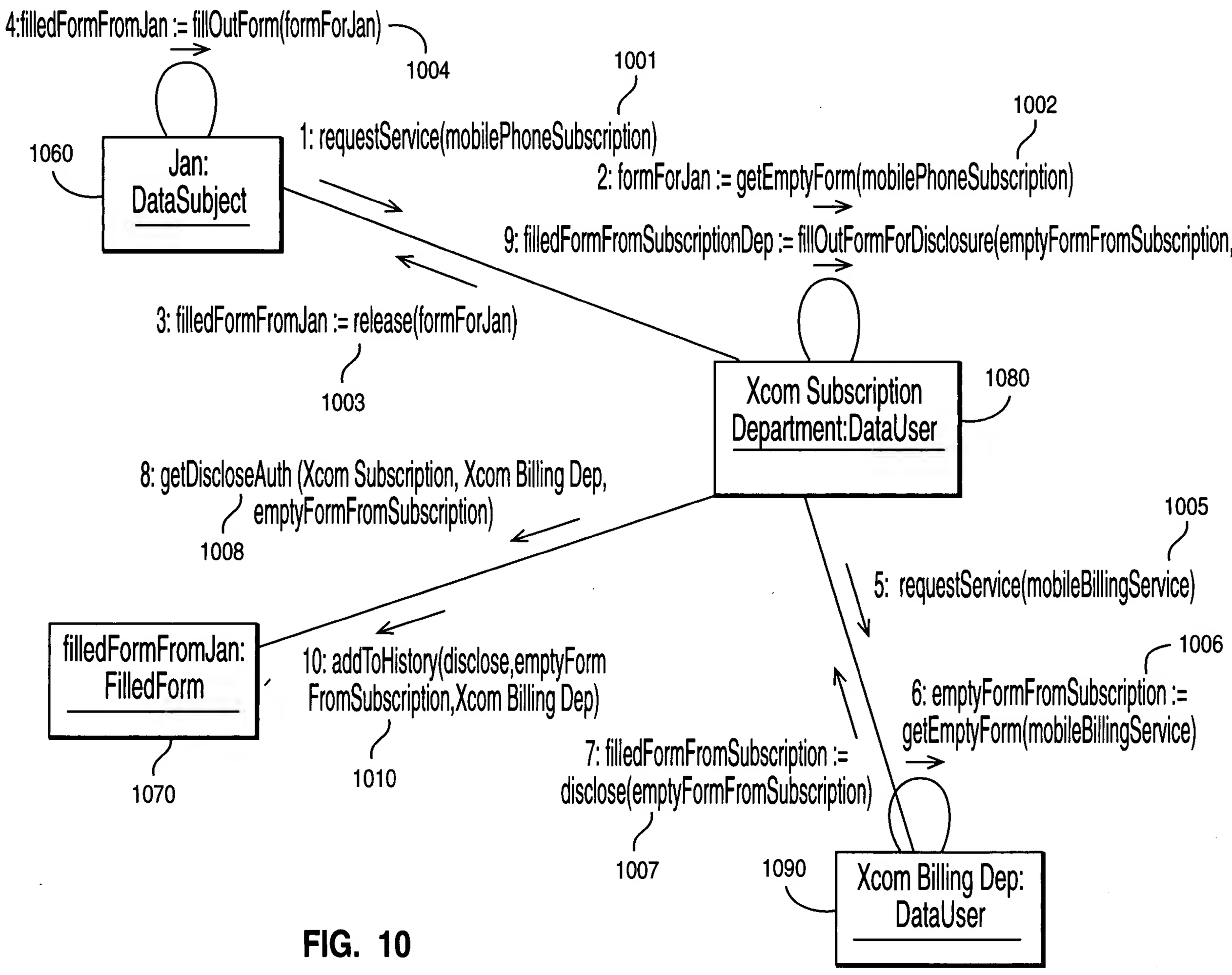

4:filledFormFromJan := fillOutForm(formForJan)
1004
1001
1002
1: requestService(mobilePhoneSubscription)
2: formForJan := getEmptyForm(mobilePhoneSubscription)
1060
Jan:
DataSubject
9: filledFormFromSubscriptionDep := fillOutFormForDisclosure(emptyFormFromSubscription,filledFormFromJan)
1009
3: filledFormFromJan := release(formForJan)
1003
1080
Xcom Subscription
Department:DataUser
8: getDiscloseAuth (Xcom Subscription, Xcom Billing Dep,
emptyFormFromSubscription)
1008
1005
5: requestService(mobileBillingService)
filledFormFromJan:
FilledForm
10: addToHistory(disclose,emptyForm
FromSubscription,Xcom Billing Dep)
1006
6: emptyFormFromSubscription :=
getEmptyForm(mobileBillingService)
1070
1010
7: filledFormFromSubscription :=
disclose(emptyFormFromSubscription)
1007
1090
Xcom Billing Dep:
DataUser

FIG. 10

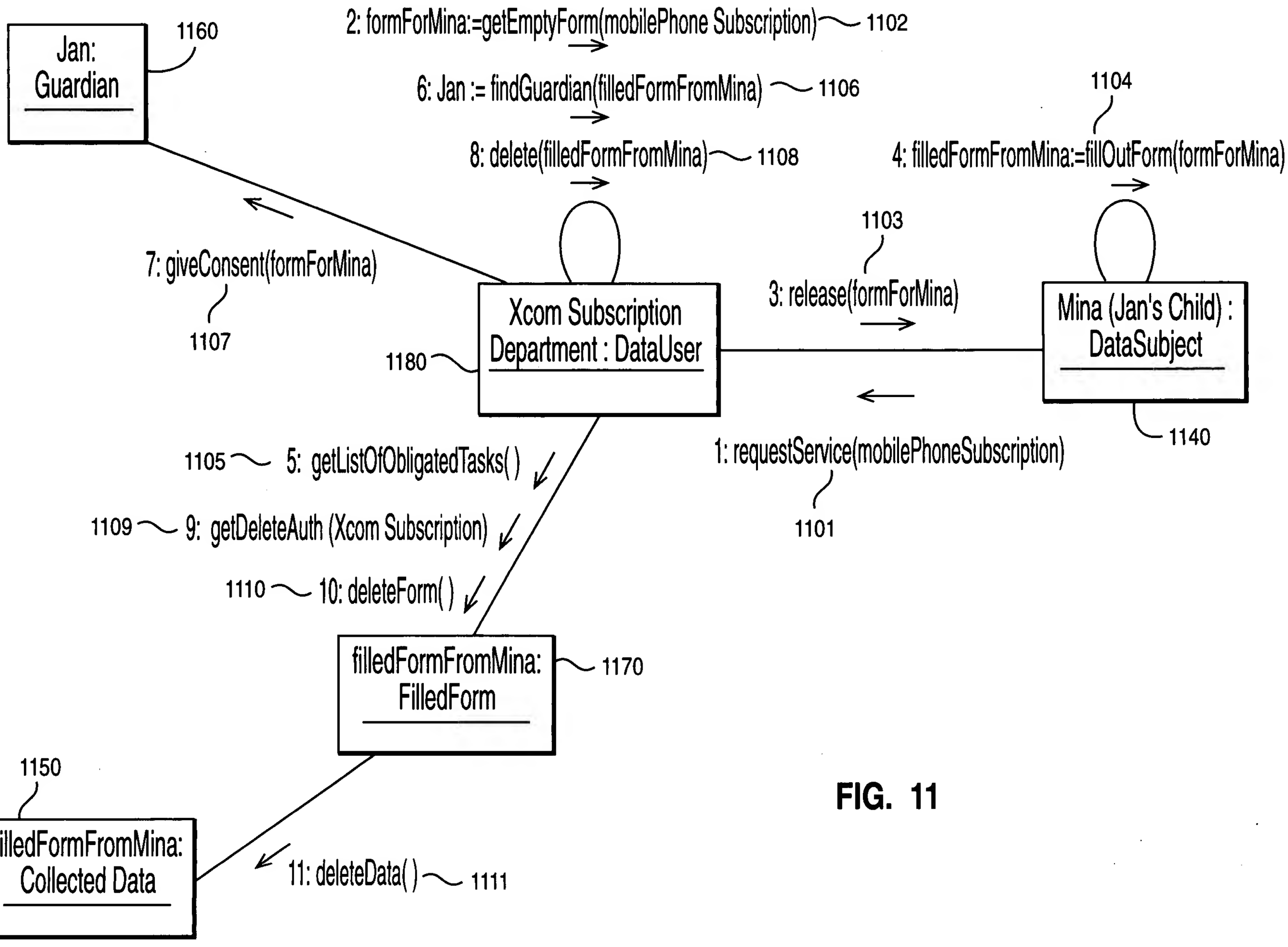

Jan:
Guardian
1160
2: formForMina:=getEmptyForm(mobilePhone Subscription)
1102
6: Jan := findGuardian(filledFormFromMina)
1106
8: delete(filledFormFromMina)
1108
1104
4: filledFormFromMina:=fillOutForm(formForMina)
7: giveConsent(formForMina)
1107
1103
3: release(formForMina)
Xcom Subscription
Department : DataUser
1180
Mina (Jan's Child) :
DataSubject
1140
1: requestService(mobilePhoneSubscription)
1101
1105
5: getListOfObligatedTasks( )
1109
9: getDeleteAuth (Xcom Subscription)
1110
10: deleteForm( )
filledFormFromMina:
FilledForm
1170
1150
filledFormFromMina:
Collected Data
11: deleteData( )
1111

FIG. 11

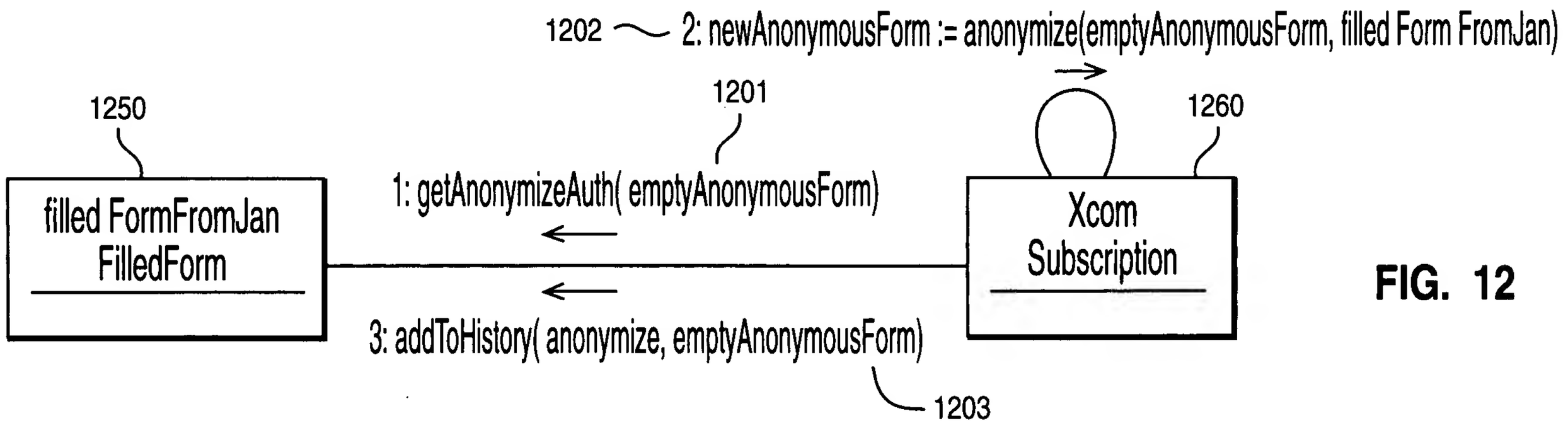

1202
2: newAnonymousForm := anonymize(emptyAnonymousForm, filled Form FromJan)
1250
1201
1260
filled FormFromJan
FilledForm
1: getAnonymizeAuth(emptyAnonymousForm)
Xcom
Subscription
3: addToHistory(anonymize, emptyAnonymousForm)
1203

FIG. 12

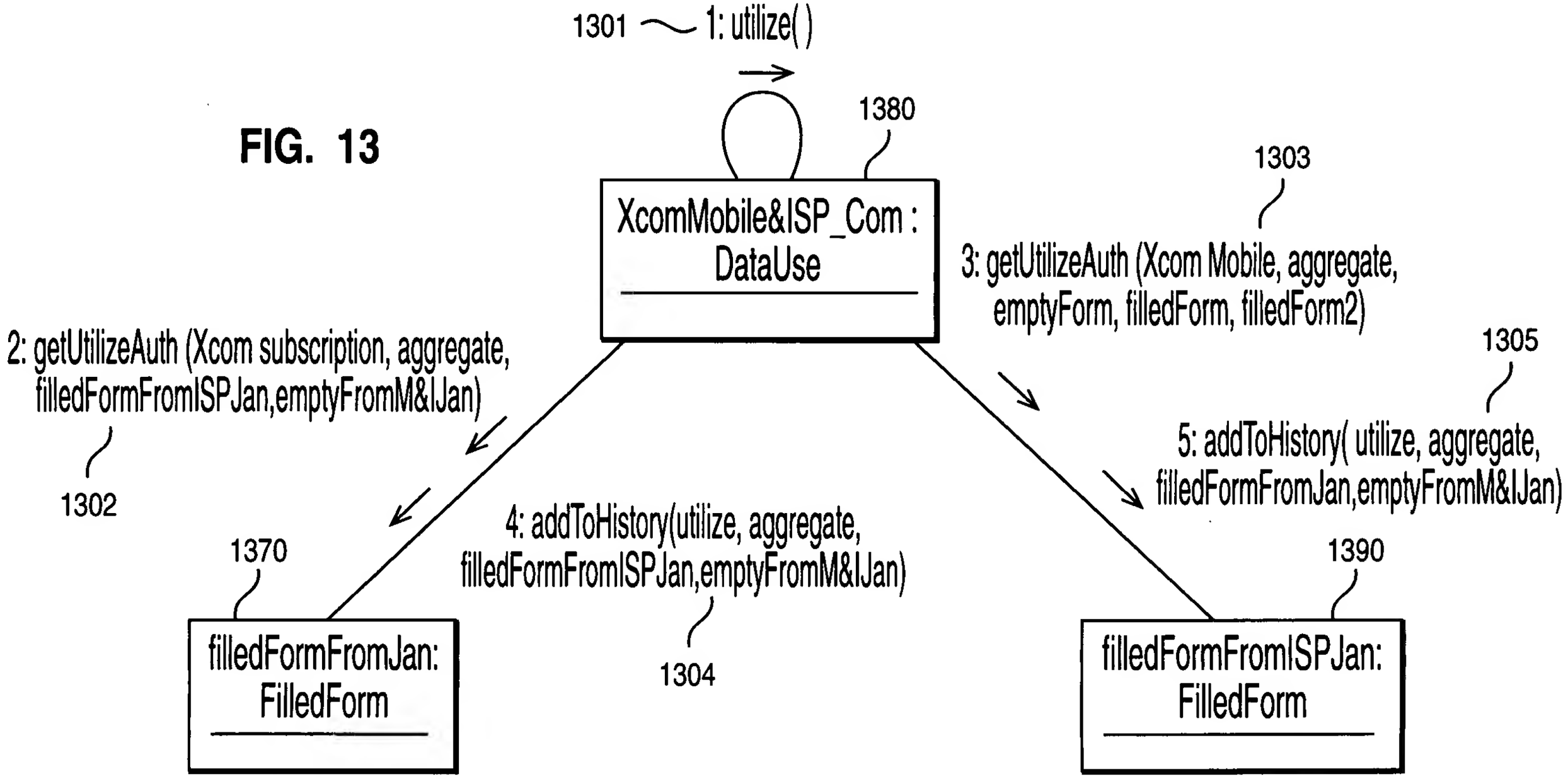

1301
1: utilize( )
1380
XcomMobile&ISP_Com :
DataUse
1303
3: getUtilizeAuth (Xcom Mobile, aggregate,
emptyForm, filledForm, filledForm2)
1305
5: addToHistory(utilize, aggregate,
filledFormFromJan,emptyFromM&IJan)
2: getUtilizeAuth (Xcom subscription, aggregate,
filledFormFromISPJan,emptyFromM&IJan)
1302
1370
4: addToHistory(utilize, aggregate,
filledFormFromISPJan,emptyFromM&IJan)
1390
filledFormFromJan:
FilledForm
1304
filledFormFromISPJan:
FilledForm

FIG. 13